UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,669	02/02/2004	Mutsumi Hosoya	520.43454X00	7325

			EXAMINER
24956	7590	10/12/2005	CHEN, ALAN S

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ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/768,669	HOSOYA, MUTSUMI
	Examiner	Art Unit
	Alan S. Chen	2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

    4a) Of the above claim(s) *7-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 6* is/are rejected.

7)☒ Claim(s) *4 and 5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/06/2005*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election without traverse of claims 1-6 in the reply filed on 09/14/2005 is

acknowledged.

Claim Objections

2.   Claim 5 is objected to because of the following informalities: line 6, replace "reties" with

"retries". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

   1.   Determining the scope and contents of the prior art.
   2.   Ascertaining the differences between the prior art and the claims at issue.
   3.   Resolving the level of ordinary skill in the pertinent art.
   4.   Considering objective evidence present in the application indicating obviousness
           or nonobviousness.

5.   Claims 1-3 and 6 are rejected under 35 USC 103(a) as being unpatentable over Gregg in

view of applicant's admitted prior art.

6.   Per claims 1-3, Gregg discloses a reliable data transfer (utilizes error checking/correction

algorithms, Fig. 3 and 4, cyclical redundancy checking CRC; Fig. 8 shows error responses to

insure reliable data transfer) between an initiator and a target Fig. 1, elements 102 and 104,

respectively, and the error checking code within a sent message (Fig. 3 and Fig. 4) is checked by

the target for error (Fig. 3, element 304 and 306 are checked at the target; Column 6, lines 38-59;

Fig. 8), whereupon a status condition, e.g., error/acknowledge/completion is send back to the

initiator (Figs. 5 and 6, MRB, message response block is sent back to the initiator; Fig. 8, error

response is sent to the initiator). At this point, Gregg discloses the initiator attempting to resend

the message to the target (Fig. 9, resend command; Column 8, lines 60-65). Gregg discloses the

fundamental units of data transfer are fundamentally the frames shown in Fig. 3, which comprise

the data fields in Fig. 4 (Column 4, lines 49-65), all of which under the broadest reasonable

interpretation of the claims are considered "logical records" whereby a plurality of logical

records are transferred in a "batch" (Gregg discloses a particular field "A Bit", Fig. 4, element

408, which indicates more frames/records, e.g., the frame shown in Fig. 3/4 will be sent; Column

4, lines 60-63; Column 6, lines 17-32; Fig. 6), whereupon after each transfer, e.g., whether it is

every frame or the completion of the entire batch of frames, the initiator makes a confirmation

(ACK) for each frame sent as well as the implicit confirmation that the last frame of a batch is

sent (denoted by sending DATA(Abar), which indicates this is the last of the batch and the entire

data set is sent) and each record is transferred by a transfer request issued by the initiator (Fig. 5,

MCB command issued by the initiator requesting target for preparation of data transfer). Note

for a batch transfer where multiple frames are sent within one MCB issued by the initiator, a

predetermined condition based on the A-bit, Fig. 4, element 408 must be met, e.g., the A-bit is

asserted, and an acknowledgement (Fig. 5, ACK, equivalent to the completion status) is posted

by the target. Per claims 2 and 3, Gregg further discloses the scenario where the target/recipient

decodes a frame that indicates an error and stops sending data and does not send back a

completion status, e.g., MRB, but rather sends back an Invalid Buffer Response INVRS (Column

7, line 66-Column 8, line 15; Fig. 7, item 5). If the command was for a batch transfer, e.g., the

A-bit is asserted, this will stopped by the quiescing of the original command and the data will be

recovered via resending the data (Column 8, lines 60-65) after termination of the original request

command.

Gregg does not disclose expressly the completion status posted by the target is placed in a

completion queue in the target once the logical record is received.

Applicant's admitted prior art discloses having a completion queue to store completion

statuses that waits in queue to be transferred back to the host.

Gregg and the admitted prior art are analogous art because they are from the same field of

endeavor in mitigating error in data transfer by using status information transmitted between an

initiator and a target.

At the time of the invention it would have been obvious to a person of ordinary skill in

the art to utilize a completion queue to store the completion status.

The suggestion/motivation for doing so would have been the need for a buffer in the

target since the target processor could be too busy to immediately send a completion status or a

MRB signal due to high demand on the processor the requires immediate attention. In fact,

Gregg indeed indicates a buffer area for the responses back to the initiator (Fig. 2, element 218;

Column 4, lines 1-5) suggesting the completion statuses, e.g., MRB messages are queued for

responding to the initiator.

Therefore, it would have been obvious to combine Gregg with the applicants admitted prior for the benefit of handling situations where the target is busy handling other processing and require a temporary store for responses back to the initiator.

7.   Per claims 6, Gregg further discloses of the initiator to stop the batch transfer in the middle of the transfer by issuing a cancel request (Fig. 7, item 5, and Column 7, line 65-Column 8, line 5 indicate A-bit being on, e.g., a batch transfer, where in the middle of the batch transfer, the originator can send the INVRQ which after a chain of subsequent commands, causes the batch transfer to stop).

Allowable Subject Matter

8.   Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is the statement of reasons for the indication of allowable subject matter: The prior art disclosed by the applicant and cited by the Examiner fail to teach or suggest, alone or in combination, *all* the limitations of the independent claim (claim 1), particularly the scenario when one or more transfer errors are detected during the batch transfer, the target keeps track of all the logical records that have an occurrence of an error via a list of IDs, the IDs corresponding to the logical records, whereupon the initiator attempts to transfer again the logical records based on the list of IDs.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to error mitigation in data transfer between an initiator and target:

U.S. Pat. No. US006854014B1 to Amin et al.

U.S. Pat. No. US006006100A to Koenck et al.

U.S. Pat. Pub. No. US20020183936A1 to Kulp et al.

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S. Chen whose telephone number is 571-272-4143. The examiner can normally be reached on M-F 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on (571) 272-4083. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ASC
09/28/2005

KIM HUYNH
PRIMARY EXAMINER

10/6/05